

## Claims

- [c1] 1.A method for calculating pitch estimation of a sound signal with a voice processor, the sound signal comprising a plurality of sound data, the method comprising the following steps:
- (a) providing an initial value to a lag parameter;
  - (b) using the voice processor to calculate an autocorrelation value according to the lag parameter;
  - (c) storing the lag parameter and the corresponding autocorrelation value in a memory;
  - (d) setting a first increment and a second increment;
  - (e) using the voice processor to compare the autocorrelation values in step (b) with a first threshold value, wherein when the autocorrelation value is less than the first threshold value, the lag parameter is increased by the first increment, and when the autocorrelation value is larger than the first threshold value, the lag parameter is increased by the second increment;
  - (f) repeating step (b), step (c), step (d) and step (e) until the lag parameter is larger than a predetermined value; and
  - (g) comparing the plurality of autocorrelation values stored in the memory to find a maximum autocorrelation

value and calculating a pitch estimation of the sound signal according to the lag parameter corresponding to the maximum autocorrelation value.

- [c2] 2.The method of claim 1 wherein the second increment is less than the first increment in step (d).
- [c3] 3.The method of claim 1 wherein the initial value is equal to 1 in step (a).
- [c4] 4.The method of claim 1 wherein the predetermined value is equal to a cycle number of the digital sound data.
- [c5] 5.The method of claim 1 wherein step (d) further comprises setting a third increment and step (e) further comprises using the voice processor to compare the autocorrelation value generated in step (b) and a second threshold value that is larger than the first threshold value, wherein when the autocorrelation value is less than the second threshold value and larger than the first threshold value, the second increment is added to the lag parameter, and when the autocorrelation value is larger than the second threshold value, the third increment is added to the lag parameter.
- [c6] 6.A voice processing device for implementing the method of claim 1.

